

**Notice of Allowability**

Application No.

09/815,446

Applicant(s)

BODE ET AL.

Examiner

Art Unit

Dwin M. Craig

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/9/2006.
2. ☒ The allowed claim(s) is/are 1-34.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

## DETAILED ACTION

And

### Examiner's Reasons for Allowance

1. Claims 1-34 are allowed.

### *Examiner's Reasons for Allowance*

2. The following is an examiner's statement of reasons for allowance:

2.1 As regards independent claims 1, 15, 16 and 29, US Patent 5,877,861 teaches, *a method comprising processing at least one semiconductor device; acquiring metrology data from said processed semiconductor device; performing a field-to-filed metrology analysis based upon said metrology data to determine a field-to-field error and performing at least one of a field-level adjustment and a wafer-level adjustment based upon a residual-error analysis, this reference taken alone or in combination with the prior art of record fails to disclose, performing a residual error analysis by comparing wafer-mean error and field-mean error, specifically including:*

(claim 1) "... performing residual-error analysis based upon said field-to-filed analysis and said wafer-mean error, said residual-error analysis comprising determining whether significant residual error exists as a result of comparing said residual error with a predetermined tolerance, said residual-error analysis being based upon said comparison of said wafer-mean error and said field-mean error data..."

(claim 15) "...means for performing residual-error analysis based upon said field-to-filed analysis and said wafer-mean error, said residual-error analysis comprising determining whether significant residual error exists as a result of comparing said residual error with a predetermined

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tolerance, said residual-error analysis being based upon said comparison of said wafer-mean error and said field-mean error data...”.

(claim 16) “...performing residual-error analysis based upon said field-to-filed analysis and said wafer-mean error, said residual-error analysis comprising determining whether significant residual error exists as a result of comparing said residual error with a predetermined tolerance, said residual-error analysis being based upon said comparison of said wafer-mean error and said field-mean error data...”.

(claim 29) “...metrology data relating to a processed semiconductor device and comparing said filed-mean error and said wafer-mean error to determine a residual error, said controller also to determine whether a significant residual error exists as a result of comparing said residual error with a predetermined tolerance, said residual-error analysis being based upon said comparison of said wafer-mean error and said field-mean error data...”,

**in combination with the remaining elements and features of the claimed invention.** It is for these reasons that the applicant’s invention defines over the prior art of record.

**2.2** As regards independent claims 11 and 26, US Patent 5,877,861 teaches, *a computer system, a manufacturing model coupled with said computer system, said manufacturing model being capable of generating and modifying at least one control input parameter signal; a machine interface coupled with said manufacturing model and said computer system, said machine interface being capable of receiving process data from said manufacturing model and said computer system; a processing tool coupled with said machine interface, said processing tool being capable of receiving at least one control input parameter signal from said machine interface and performing a manufacturing process; a metrology tool coupled with said*

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*processing tool, said metrology tool being capable of acquiring field-level metrology data; this reference taken alone or in combination with the prior art of record fails to disclose, comparing field-level data with wafer-mean error data, specifically,*

(claim 11) "...calculating at least one manufacturing error based upon comparison of a field-mean error and a wafer-mean error for generating modification data...".

(claim 26) "...comparing said field-mean error and a wafer-mean error to determine a residual error...",

**in combination with the remaining elements and features of the claimed invention.** It is for these reasons that the applicant's invention defines over the prior art of record.

**2.3** Dependent claims 2-10, 12-14, 17-25, 27, 28 and 30-34 are allowed for at least the reasons that they depend from an allowed base claim.

**2.4** Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***


**3.** Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dwain M. Craig whose telephone number is (571) 272-3710. The examiner can normally be reached on 10:00 - 6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul L. Rodriguez can be reached on (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DMC

  
PAUL RODRIGUEZ  
SUPERVISORY PATENT  
TECHNOLOGY CENTER